Work in Progress — Rural Pondicherry's Wireless Internet

An "information shop" in southern India. (Photo courtesy of the Swaminathan Foundation)

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What a difference seven years can make. In that time, a project to bring the Information Age to villagers in southern India has won awards and given 50 000 "information shop" users in a dozen communities high-speed wireless telephone and Internet access. It has also helped improve more traditional Indian communication methods, such as community newspapers.

These results confirm the M.S. Swaminathan Research Foundation's faith in a project, launched in 1998 with funding from Canada's International Development Research Centre (IDRC) and the Canadian International Development Agency (CIDA), to provide Internet, voice, and database access to rural villagers in Pondicherry to enhance their quality of life.

Technology catches up

When the project began, technical challenges included a near-total absence of modern telephone infrastructure in the area, a three-to-five year wait for standard phone landlines, and a shoestring budget. Engineers worked around these problems by channelling telephone and Internet access through a then-unconventional combination of modems and VHF (very high frequency) radios. A central base picked up radio signals from each village and fed them into the Indian telephone network's landlines. To back up sporadic rural power, computers, printers, and radios in each knowledge centre — as the information shops are now called — had a solar power backup. The system may have moved data at less than a tenth of the speed of current dialup modems in North America and Europe, but it worked.

Since then, the project underwent a second phase and mainstream technology has supplanted the makeshift modem-and-radio set-up. New commercial wireless networking equipment gives Pondicherry's villagers high-speed wireless Internet. Equipment may still need a solar power backup, but villagers can now use video-conferencing to meet their bankers and government officials in major centres. A third phase, approved in September 2004, is carrying out further research on the sustainability of rural knowledge centres.

Some technical limitations remain, project officials say, but the system works well enough to have spawned imitators: government departments and companies in the area have set up similar wireless internet systems for themselves. For its part, the Swaminathan Foundation is expanding its network capacity with satellite dishes technically similar to the ones North Americans use for digital television.

Two international awards — the 1999 Motorola Dispatch Solution Award and the 2001 Stockholm Challenge Award, in the global village category — confirm the project's technological and social advances.

Access for all

Official languages in Pondicherry, a former French colonial area on the Bay of Bengal in southern India, include English, French, and Tamil. Since Tamil is the main language in rural areas, personal computers in the knowledge centres run Microsoft Windows and Office software with Tamil fonts developed by the Government of India.

Because men of higher caste have traditionally controlled information to their advantage, the Swaminathan Foundation wanted early on to ensure equitable access to the centres. Before setting up the first knowledge centres, project administrators therefore asked participating villages to agree to certain conditions: centre volunteers had to keep them open for several hours per day, guard equipment against vandalism and tampering, guarantee access to members of the Dalit population (formerly known as "untouchables"), and ensure that at least half of the trained volunteer operators were women.

By early 2003, the Swaminathan Foundation was reporting that more than half the knowledge centres' volunteers are now women. This, in turn, has encouraged more women users.

And the information is being used by all. For instance, illiterate villagers hear weather reports and other information downloaded from the Internet as audio files and played over public address loudspeakers. One fishing village, Veerampattinam, whose small boats ply the Bay of Bengal, plays US Navy wave height forecasts, fishing-related government announcements, market details, employment news, and current fair prices for commodities such as rice, kerosene, and sugar.

In December 2004, the public address loudspeakers proved to be lifesaving for residents of Nallavadu village, Pondicherry. Informed of the approaching tsunami by a phone call from her Singapore-based relative, a resident of the village warned others of the approaching danger. The warning to evacuate immediately was quickly broadcast over the loudspeakers. As a result, no lives were lost in the village, despite considerable damage. *[read Phone call saved scores of Indian villagers from tsunami]*

The information gathered at the telecentres is also feeding more traditional media. A volunteer-run, twice-monthly, community newspaper, *Namma Ooru Seithi*, was launched in early 2002 to reach those beyond the knowledge centres' ambit. Its articles cover topics of local interest such as agriculture, traditional health care, jobs, coming training programs, recipes, child care tips, and village-specific news. It's a mix popular enough for All India Radio to have asked the paper to put together a monthly short program based on its contents.

Enabling social change

Over the past few years, knowledge centres in the wired villages of Pondicherry have bred a hunger for more information. And Swaminathan Foundation officials suggest that the centres themselves may be less important than the ways in which villagers use them.

New information, however it's delivered, is changing lives. For instance, when one knowledge centre began blowing its village cyclone-warning siren at set times throughout the day to give farm labourers and school students accurate work starting and stopping times, landowners tried to shut it down so they could retain their labourers longer. A flurry of public meetings and the knowledge centre's levelling effect has kept the time signal running.

There are other examples of change. Self-help groups were started in the centres to support women and provide information about health and medical issues, small business, and how to access government programs and pensions. Some centres offer women evening counselling sessions. Others have started microfinance groups that, for a monthly subscription fee, offer loans and training to start cottage industries producing such items as incense sticks, pickles, and soaps. And female agricultural labourers who are paid partly in grain use the centres to stay informed about grain market prices.

Fishermen, dairy farmers, and coconut sellers also keep a watch on product prices. Teachers prepare lessons and students do homework. *Panchayats*, or local councils, do their accounting and correspondence, and gain access to grants for infrastructure such as roads, bus stations, streetlights, and drains. State and federal government representatives put together their reports and use voice lines to consult with superiors about local queries. Job seekers find employment. Older people share traditional medical lore. Many morning users come to centres to read newspapers. Everybody relies on weather reports.

Two-way communication

Access has become a two-way street, with outside agencies paying more attention to the wired villages. Representatives are coming to meet villagers to discuss rural development, loans for small enterprises, and farm clinics. Because the villages can now send timely data to India's statistics bureau, they get more useful statistical information back. The District Rural Development Agency posts welfare information for people with low incomes, and an area veterinary college posts animal care tips.

Having researched and demonstrated the benefits of ICTs for poor rural communities, the Swaminathan Foundation held two Policymakers Workshops to share lessons learned through the project. At the second of these meetings, held in July 2004, the National Alliance for Mission 2007 — a national movement to enable up to 600,000 villages in India to be empowered through rural knowledge centres by 2007 — was launched. The Government of India has since committed INR 100 crores (CAD $28 million) to the Mission.

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